Transforming evaluation to better address complexity

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Complexity shifts how we see the world

1. The world is complex

2. Insights from the complexity sciences can shift how we see the world

3. The implications for evaluation will be transformative but more work is needed first

Presentation structure

1. Project background
2. Turn to complexity in evaluation
3. Complexity Sciences - what does it mean to say something is complex?
4. Implications for complexity-congruent evaluation

PART 1: Project background

3 year ARC Linkage project

Evaluating Communication for Development:

Supporting Adaptive and Accountable Development

RMIT UNIVERSITY

UNIVERSITY OF HYDERABAD

eidos

unicef

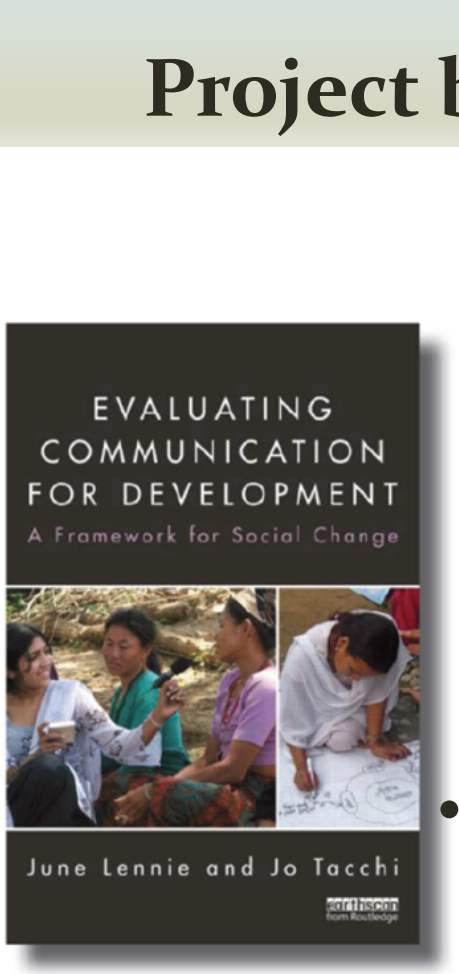
Australian Government

Australian Research Council

Communication for Development: The Social Ecological Model and Approaches

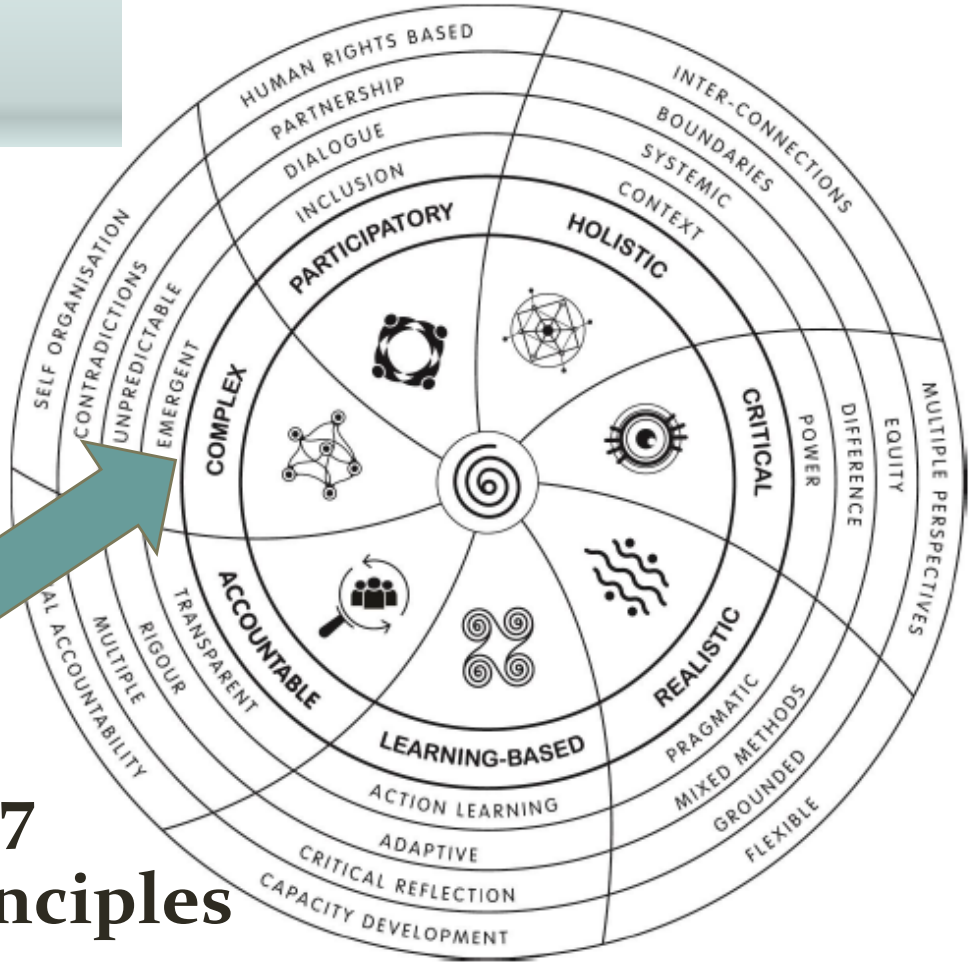
- Advocacy
- Social Mobilization
- Social Change Communication
- Behavior Change & Social Change Communication
- Behavior Change Communication

Project background



- **C4D Evaluation Framework**
(Lennie & Tacchi, 2013)

- **Complex is 1 of the 7 interconnected principles**



Project background

Communication for Development
Social Ecological Model and Approaches

C4D Evaluation Framework

The complexity sciences

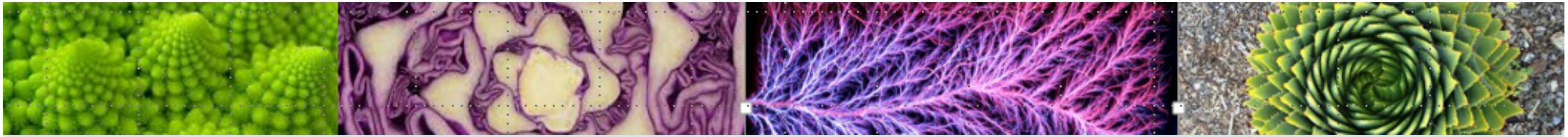
Idiomatic confusion

Synonyms for complexity (noun): *complicatedness, complication, elaborateness, intricacy, intricateness, involution, knottiness, sophistication*

Synonyms for complex (adj): *multi-dimensional, intricate, complicated, convoluted, composite, compound, conglomerate, manifold, mosaic, motley, multiple, multiplex, circuitous, compounded, confused, elaborate, entangled, heterogeneous, knotty, labyrinthine, mingled, miscellaneous, mixed, mixed-up, multifarious, multiform, tangled, tortuous, variegated.*
Complicated, abstruse, arduous, convoluted, difficult, fancy, hard, intricate, knotty, perplexing, problematic, sophisticated, troublesome, elaborate, entangled, interlaced, can of worms, labyrinthine, recondite, wheels within wheels.

We can apply and integrate ‘complexity’ to explain and understand ‘complex behaviour’

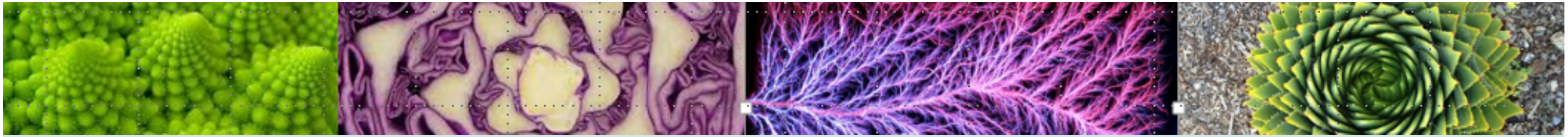
Complex	***Phenomena, behaviours or characteristics*** **arising from the interplay of the characteristics of complex systems**
Complexity	**Concepts and insights of the complexity sciences** **Conceptual framework** **Way of thinking and seeing the world**



PART 2: The turn to complexity in evaluation

Contingency framework in evaluation: organisations might be better managed if they were thought of as complex evolving systems rather than mechanical ones

	Glouberman and Zimmerman 2002
Simple	Tested 'recipes' assure replicability Expertise is not needed
Complicated	Success requires high level of expertise in many specialized fields and coordination
Complex	Every situation is unique – previous success does not guarantee success Expertise can help but is not sufficient - relationships are key

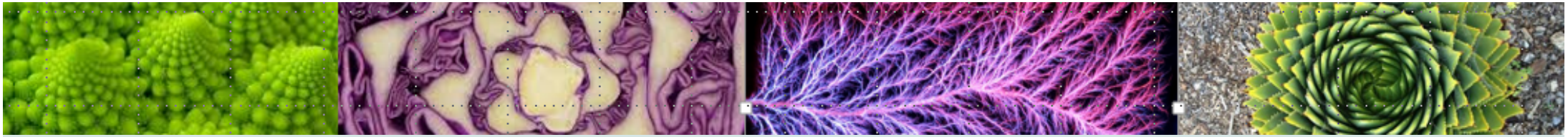


The turn to complexity in evaluation

Developmental Evaluation

- **Developmental principle: illuminate, inform, and support what is being developed**
- **Complexity principle: interpret social innovation through the lens of complexity**
- **Six interdependent complexity concepts undergird developmental evaluation**
  - **Non-linearity**
  - **Emergence**
  - **Dynamical systems**
  - **Adaptiveness**
  - **Uncertainty**
  - **Co-evolutionary processes**

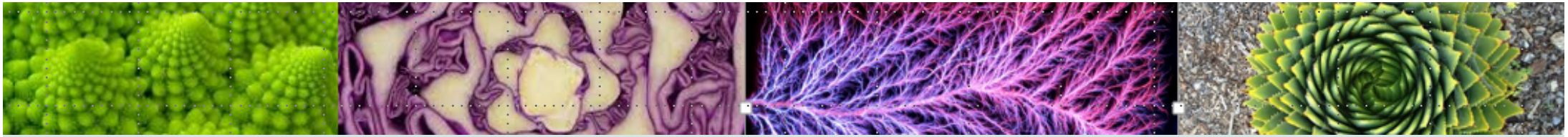
'Developmental Evaluation, Applying Complexity Concepts to Enhance Innovation and Use' (Patton, 2011)



The turn to complexity in evaluation

Complexity theory frame of reference

- **Views interventions as embedded in a larger policy landscape**
- **Reframes the role and practice of evaluation as an '*exploration of the manifestation of complex causality*' (Callaghan, 2008)**
- **Views evaluation itself as a highly complex endeavour**

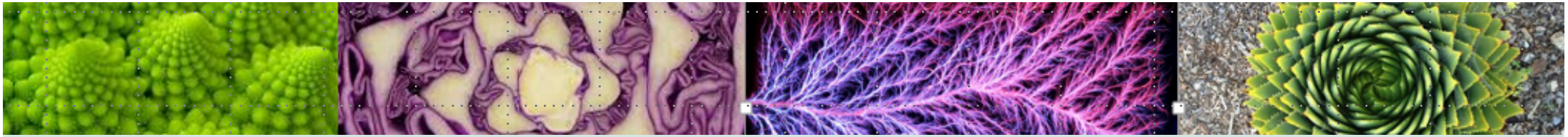


The turn to complexity in evaluation

Complexity theory frame of reference

cecan Centre for the Evaluation of Complexity Across the Nexus - **UK government funded research project to pioneer, test and promote innovative policy evaluation approaches and methods across Nexus domains such as food, energy, water and the environment**

- **Resources and a syllabus of methods, including:**
  - **Qualitative comparative analysis (QCA)**
  - **Process tracing**



The turn to complexity in evaluation

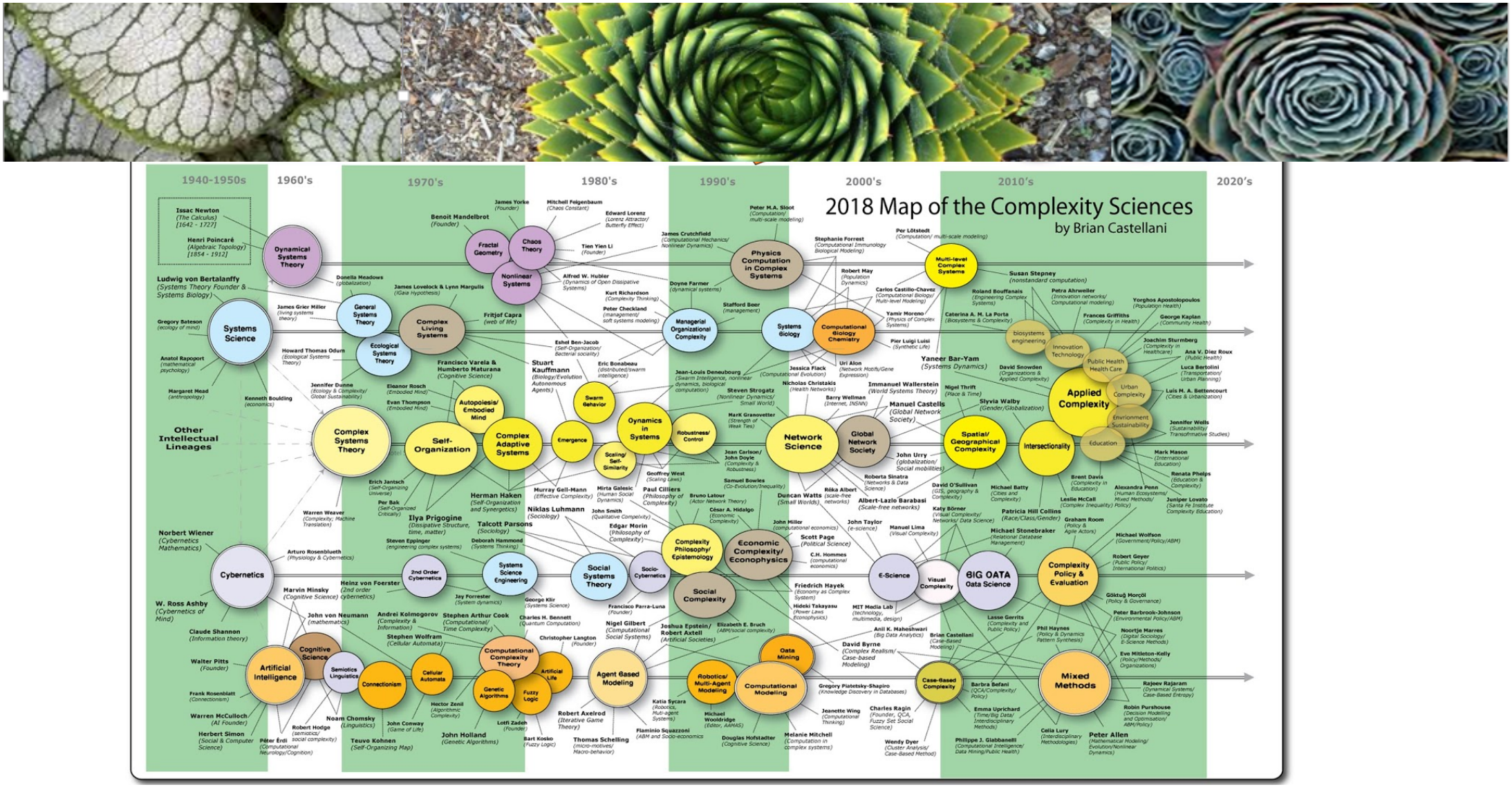
What does evaluation theory and practice look like through the prism of complexity?

Theory based Evaluation	Use complexity to explain and helps us understand evaluands characterised by complex behaviour
Utilisation Focused Evaluation	Inform adaptive actors about a changing social eco-system, how to navigate through evaluands characterised by complex behaviour and how to adapt
Developmental Evaluation	Use of 6 'sensitising' concepts to co-create innovation with social innovators

PART 3: What does it mean to say something is complex?

Introducing a complexity paradigm

- An increasing awareness of the complexity of the world seems to be linked to the rise in the interest in the science of complexity and the ways it takes a different approach to looking at the world
- Complexity is not a singular science or singular theory but an interdisciplinary concern that has undergone a rapid expansion since the 1940-1950's



Brian Castellani – Map of the Complexity Sciences (2018)

What does it mean to say something is complex?

Definitions – a word of caution

'...any single definition is going to be inadequate to the task' (Stuart A. Kaufman, 2008, p. 82).

'Complexity is an ill-defined term. There are, famously, dozens of definitions in circulation and no consensus about which are reasonable and which are not. So I avoid using the word' (Mark Newman, 2008, p. 102).

'the most problematic aspect/concept of complexity is the fact that it will be very hard to arrive at a common definition of what complexity is. In my opinion, this depends very much on the specific field a scientist works in' (Hermann Haken, 20008, p.63).

What does it mean to say something is complex?

'I believe that complexity is an approach to do science. There is no theory of reduction in science' (W. Brian Arthur, 2008, p. 11)

What does it mean to say something is complex?

In the human social world, complexity refers to the formation of new collective patterns and relationships through an interplay of human agency, interconnectedness and interdependent agents working together, and the influence of these patterns back onto individuals

What does it mean to say something is complex?

Turn to complexity in the social sciences

'The value of complexity theory to the social sciences has been appreciated relatively recently'

(Byrne, 1998; Cilliers, 1998; Urry, 2003 in Callaghan, 2008. p. 401).

What does it mean to say something is complex?

Academic discipline of Big History

- 13.8 billion years of history from the Big Bang to now
- Places human history within the wider context of the universe's history
- Increasing complexity is the basic shape of the story of Big History

What does it mean to say something is complex?

The shape of Big History

1. Complex entities contain diverse components
2. These components are arranged in very particular ways
3. Complex things have new or emergent properties. When complex things are arranged in the right patterns that enables their parts to work together, they can do new things
4. Complex entities seem to: emerge only where there exist necessary Goldilocks conditions; and be associated with flows of energy that help them maintain their structure

What does it mean to say something is complex?

Unifying themes - Propositions

C1: Formations of systemic patterning

C2: Co-evolutionary dynamics of multi- dimensional problem spaces

C3: Conditions that are far from equilibrium

C4: Agency

C5: Increasing specialisation and diversity

C6: Interacting elements and non-linear cause and effect relationships

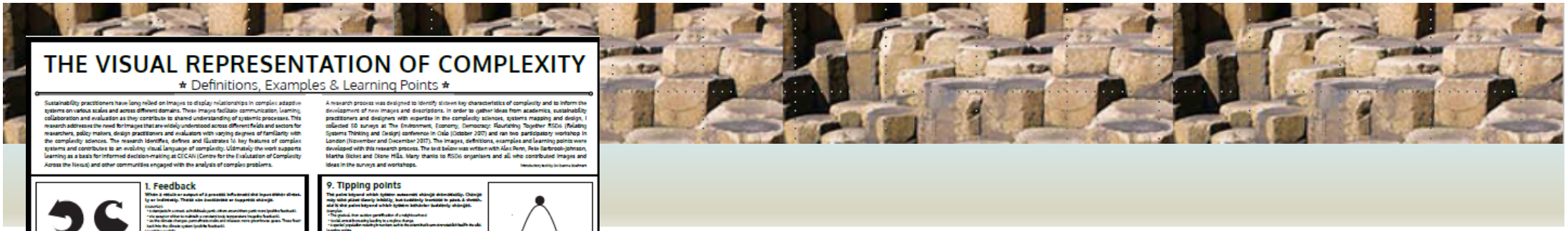
C7: Path dependency and sensitivity to context

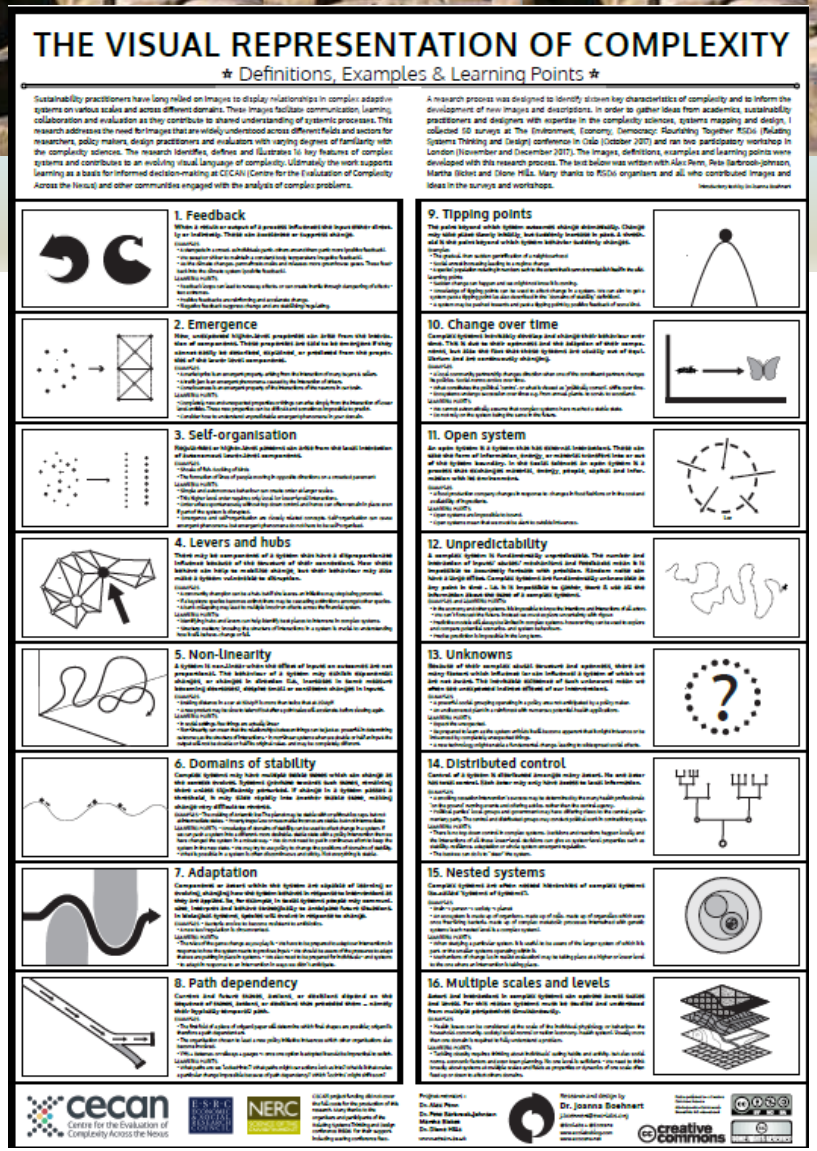
C8: Limitations of mechanistic linear thinking and the modern scientific framework

What does it mean to say something is complex?

Core complexity concepts

- Generic principles that are common to all natural complex systems
- Provide a starting point rather than direct mapping
- Human social systems need to be studied in their own right





Core concepts

- **Emergence, connectivity, interdependence and feedback are familiar from systems theory**
- **Complexity builds on and enriches systems theory by articulating additional characteristics of complex systems and by emphasising their inter-relationships and interdependence**

Future expectations

'I think that the next century will be the century of complexity.'

Stephen Hawking, January 2000.

What does it mean to say something is complex?

Future expectations

> ***'I think it is going to take decades or centuries for science to see what complex systems really are all about. Progress will be slow... So far, we've only got a taste of what is coming'***

W. Brian Arthur, 2008

Part 4: Complexity-congruent evaluation

Challenge for evaluators is to decide how to:

1. Think about different evaluation purposes and tasks in conditions of unfolding complex phenomena and uncertainty

2. Make sense of the behaviours or characteristics arising in human social systems

3. Employ a generative process that helps stakeholders make sense of complex phenomena, and know how to use their influence to navigate their intervention/ organisation forward

Complexity-congruent evaluation

- **Define**
- **Frame**
- **Describe**
- **Understand Causes**

1. Practice complexity thinking
2. Invoke language and concepts of complexity judiciously
3. Reinterpret problems, social problem solving interventions and change through a complexity perspective
4. Assume we can only steer/ navigate in complex systems rather than predict or control them
5. Accelerate the discovery process of collective learning for the emergence of innovation and to help people to adapt or co-evolve in more positive and constructive ways

Complexity-congruent evaluation

- Define
- Frame
- Describe
- Understand Causes

6. Evaluation framing and methods to explore the manifestation of complexity

- How is it complex?
- What are the effective forces driving complex behavior?
- How does collective function emerge from individual behavior?
- Can we design policies for individuals that lead to desired collective outcomes?

Complexity-congruent evaluation

Manage

Report and Support Use

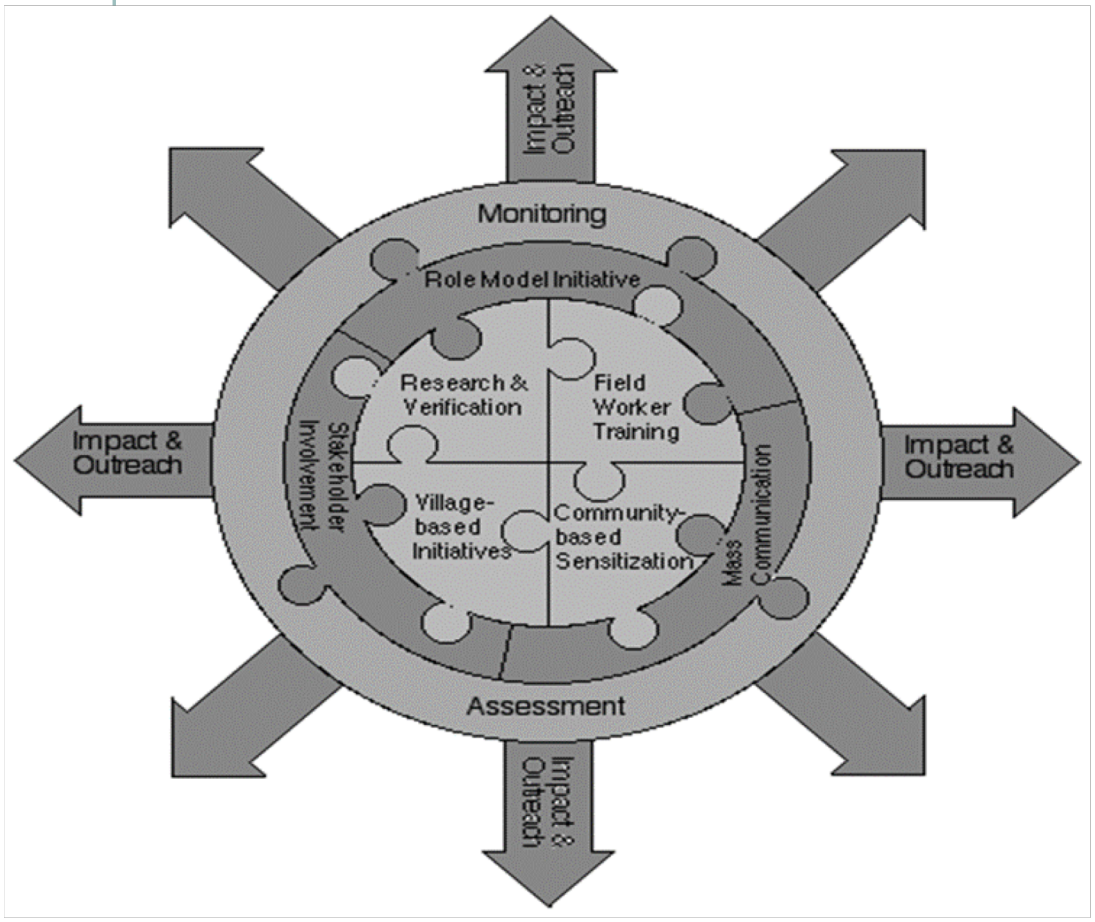
7. Assume non-equilibrium, non-linearity and that the social ecology is always emerging in one pattern or another
8. Iterative cycles of design, data collection and learning for adaption to findings
9. Review organisations evaluation history for fitness for purpose
10. Reconsider conceptualising evaluation as a political process of inter-dependent relationships and human agency
11. Evaluation capacity building:
    1. build adaptive capacity
    2. build capacity for complexity leadership

Complexity-congruent evaluation

SUMMARY

1. The world is complex
2. Insights from the complexity sciences shift how we see the world
3. But to see what complex systems are about may take decades or longer
4. The application of insights from the complexity sciences to human social systems is relatively recent
5. We can consider how insights from the complexity sciences can be used to better explain and understand complex behaviours


Any questions ?



CRECCOM (MALAWI)

SOCIAL MOBILIZATION CAMPAIGN MODEL FOR COMMUNITY DEVELOPMENT